



**COUNCIL OF
THE EUROPEAN UNION**

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**RECH 389
ATO 141
COMPET 555**

LEGISLATIVE ACTS AND OTHER INSTRUMENTS

Subject: COUNCIL DECISION concerning the specific programme, to be carried out by means of indirect actions, implementing the Framework Programme of the European Atomic Energy Community for nuclear research and training activities (2012 - 2013)

COUNCIL DECISION

of

**concerning the specific programme,
to be carried out by means of indirect actions,
implementing the Framework Programme
of the European Atomic Energy Community
for nuclear research and training activities (2012 - 2013)**

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Atomic Energy Community, and in particular Article 7 thereof,

Having regard to the proposal from the European Commission submitted after consultation of the Scientific and Technical Committee,

Having regard to the opinion of the European Parliament¹,

Having regard to the opinion of the European Economic and Social Committee²,

¹ Opinion of 15 November 2011 (not yet published in the Official Journal). Opinion delivered following non-compulsory consultation.

² OJ C 318, 29.10.2011, p. 127. Opinion delivered following non-compulsory consultation.

Whereas:

- (1) Joint national and European efforts in the area of research and training are essential to promote and ensure economic growth and the well-being of citizens in Europe.
- (2) In accordance with Council Decision 2011/.../Euratom of ... concerning the Framework Programme of the European Atomic Energy Community for nuclear research and training activities (2012 - 2013)^{1*} (hereinafter 'the Framework Programme'), the Framework Programme is to be implemented through specific programmes that define detailed rules for their implementation, fix their duration and provide for the means deemed necessary.
- (3) The Framework Programme comprises two types of activities: indirect actions in fusion energy research and research on nuclear fission, safety and radiation protection, and direct actions for activities of the Joint Research Centre (JRC) in the field of nuclear waste management, environmental impact, safety and security, especially related to nuclear events and taking into account lessons learned from previous experiences. The indirect actions should be implemented by this specific programme.
- (4) The rules for the participation of undertakings, research centres and universities and for the dissemination of research results under the Framework Programme should apply to this specific programme.

¹ OJ L

* OJ: please insert number, date and OJ reference for the decision set out in doc. ST 17503/11.

- (5) In accordance with Article 101 of the Treaty, the Community has concluded a number of international agreements in the field of nuclear research, and efforts should be made to strengthen international research cooperation, with a view to further integrating the Community within the world-wide research community. Bilateral international cooperation is based on a solid legal framework of cooperation agreements between the Community and third countries. The Framework Programme is fundamental to the implementation of those agreements. Therefore, this specific programme should be open to the participation of countries that have concluded agreements to this effect and should be also open at project level, and on the basis of mutual benefit, to the participation of entities from third countries and of international organisations for scientific cooperation.
- (6) This specific programme should contribute towards promoting sustainable development and ensuring that an appropriate safety culture is maintained.
- (7) Sound financial management of this specific programme and its implementation should be ensured in an effective and user-friendly manner, while ensuring legal certainty and the accessibility of this programme to all participants, in accordance with Council Regulation (EC, Euratom) No 1605/2002 of 25 June 2002 on the Financial Regulation applicable to the general budget of the European Communities¹ and Commission Regulation (EC, Euratom) 2342/2002 of 23 December 2002 laying down detailed rules for the implementation of Council Regulation (EC, Euratom) No 1605/2002 on the Financial Regulation applicable to the general budget of the European Communities².

¹ OJ L 248, 16.9.2002, p. 1.

² OJ L 357, 31.12.2002, p. 1.

- (8) Appropriate measures – proportionate to the Union's financial interests – should be taken to monitor both the effectiveness of the financial support granted and the effectiveness of the utilisation of these funds in order to prevent irregularities and fraud. The necessary steps should also be taken to recover funds lost, wrongly paid or incorrectly used, in accordance with Regulation (EC, Euratom) No 1605/2002, Regulation (EC, Euratom) No 2342/2002, Council Regulation (EC, Euratom) No 2988/95 of 18 December 1995 on the protection of the European Communities' financial interests¹, Council Regulation (Euratom, EC) No 2185/96 of 11 November 1996 concerning on-the-spot checks and inspections carried out by the Commission in order to protect the European Communities' financial interests against fraud and other irregularities² and Regulation (EC) No 1073/1999 of the European Parliament and of the Council of 25 May 1999 concerning investigations conducted by the European Anti-Fraud Office (OLAF)³.
- (9) Each thematic area of this specific programme should have its own budget line in the general budget of the Union.
- (10) Research activities carried out within this specific programme should respect fundamental ethical principles, including those reflected in the Charter of Fundamental Rights of the European Union,

HAS ADOPTED THIS DECISION:

¹ OJ L 312, 23.12.1995, p. 1.

² OJ L 292, 15.11.1996, p. 2.

³ OJ L 136, 31.5.1999, p. 1.

Article 1

The specific programme, to be carried out by means of indirect actions, implementing the Framework Programme of the European Atomic Energy Community for nuclear research and training activities (2012 - 2013) (hereinafter the 'specific programme') is adopted for the period from 1 January 2012 to 31 December 2013.

Article 2

The specific programme shall support activities for research and training on nuclear energy, covering the whole range of indirect research actions carried out in the following thematic areas:

- (a) fusion energy research (including the International Thermonuclear Experimental Reactor (ITER));
- (b) research on nuclear fission, safety and radiation protection.

The objectives and broad lines of the activities referred to in this Article are set out in the Annex.

Article 3

In accordance with Article 3 of Decision 2011/.../Euratom^{*}, the maximum amount for the execution of the specific programme is EUR 2 327 054 000, of which up to 15 % shall be for the Commission's administrative expenditure. This amount is allocated as follows:

- (a) fusion energy research EUR 2 208 809 000;
- (b) nuclear fission, safety and radiation protection EUR 118 245 000.

Article 4

All research activities carried out under the specific programme shall be carried out in compliance with fundamental ethical principles.

* OJ: please insert the number of the Decision set out in doc. ST 17503/11.

Article 5

1. The specific programme shall be implemented by means of the funding schemes established in Annex II to Decision 2011/.../Euratom*.
2. The rules for participation of undertakings, research centres and universities and for the dissemination of research results relating to indirect actions set out in Council Regulation (Euratom) No .../2011 of ... laying down the rules for the participation of undertakings, research centres and universities in indirect actions under the Framework Programme of the European Atomic Energy Community and for the dissemination of research results (2012-2013)^{1**} shall apply to this specific programme.

Article 6

1. The Commission shall draw up an annual work programme for the implementation of the specific programme, setting out in greater detail the objectives and scientific and technological priorities set out in the Annex, the funding schemes to be used for the topics on which proposals are invited, and the timetable for implementation.
2. The work programme shall take account of relevant research activities carried out by the Member States, associated states and European and international organisations. It shall be updated where appropriate.

* OJ: please insert the number of the Decision set out in doc. ST 17503/11.

¹ OJ L

** OJ: please insert number, date and OJ reference for the regulation set out in doc. ST 17506/11.

3. The work programme shall specify the criteria on which proposals for indirect actions under the funding schemes are to be evaluated and projects selected. The criteria shall be those of excellence, impact and implementation. Additional requirements, weightings and thresholds may be further specified or complemented in the work programme.
4. The work programme may identify the following:
 - (a) organisations that receive subscriptions in the form of a membership fee;
 - (b) actions to support the activities of specific legal entities.

Article 7

1. The Commission shall be responsible for the implementation of the specific programme.
2. For the purposes of implementing the specific programme the Commission shall be assisted by a consultative committee. The members of this committee can vary according to the different subjects on the committee's agenda. For fission-related aspects, the composition of this committee and the detailed operational rules and procedures applicable to it shall be as laid down in Council Decision 84/338/Euratom, ECSC, EEC of 29 June 1984 dealing with structures and procedures for the management and coordination of Community research, development and demonstration activities¹. For the fusion-related aspects they shall be as laid down in Council Decision of 16 December 1980 setting up a Consultative Committee for the fusion programme².

¹ OJ L 177, 4.7.1984, p. 25.

² Not published.

3. The Commission shall regularly inform the committee of the overall progress of the implementation of the specific programme, and shall provide it with timely information on all actions proposed or funded under this specific programme.

Article 8

The Commission shall arrange for the independent monitoring, assessment and review provided for in Article 6 of Decision 2011/.../Euratom* be conducted concerning the activities carried out in the fields covered by the specific programme.

Article 9

This Decision shall enter into force on the third day following that of its publication in the *Official Journal of the European Union*.

Done at Brussels,

For the Council

The President

ANNEX

SCIENTIFIC AND TECHNOLOGICAL OBJECTIVES, BROAD LINES OF THE THEMES AND ACTIVITIES

I. Thematic areas of research

I.A Fusion energy research

Overall objective

Developing the knowledge base for, and realising ITER as a major step towards, the creation of prototype reactors for power stations that are safe, sustainable, environmentally responsible, and economically viable.

Activities

1. Realisation of ITER

The Community has a special responsibility within the ITER Organisation as the host of the project and has a leading role, particularly regarding the governance of the ITER International Organisation, management and staffing, plus general technical and administrative support.

Community participation in ITER as a Party will include further contributions to the construction of equipment and installations needed at the ITER site, and to support the project during construction.

The R&D activities in support of ITER construction will be carried out in the Fusion Associations and European industries. They will include the development and testing of components and systems.

2. R&D in preparation of ITER operation

A focused physics and technology programme will aim to consolidate ITER project choices and prepare for the rapid start-up of ITER operation. It will be carried out through coordinated experimental, theoretical and modelling activities using the JET facilities and other relevant experimental and computational devices. It will ensure that Europe has the necessary impact on the ITER project, and will prepare for a strong European role in its exploitation. It will include:

- assessment of specific key technologies for ITER operation through exploitation of the JET Enhancements (ITER-like first wall, heating systems, diagnostics),
- exploration of ITER operating scenarios by means of targeted experiments on JET and other facilities, and coordinated modelling activities.

3. Limited technology activities to prepare for DEMO

Key technologies and materials required for the licensing, construction and operation of the DEMO power plant will be further developed in the Fusion Associations and industry in order to test them in ITER and to position European industry to be able to construct DEMO and develop future fusion power plants. The following activities will be implemented:

- further work by the dedicated project team on the Engineering Validation and Engineering Design Activities to prepare for the construction of the International Fusion Materials Irradiation Facility, which will be used to test materials for a fusion power station,
- development, irradiation testing and modelling of low activation and radiation-resistant materials; development of the key technologies required for fusion power plant operation, including blankets; conceptual design activities for DEMO, including safety and environmental aspects.

4. R&D activities for the longer term

Building on the activities specifically concerning ITER and DEMO, the specific programme will develop competences and enlarge the knowledge base in fields strategically relevant to future fusion power stations. These research activities will enhance the technical feasibility and economic viability of fusion power. Specific actions under the Framework Programme will include limited activities as follows:

- study of improved concepts for magnetic confinement schemes, including stellarators. Work will concentrate on preparation for the operation of the W7-X stellarator, utilisation of existing devices for expansion of the experimental databases, and appraisal of the future prospects for these configurations,
- experiment, theory and further modelling with the ultimate aim of a comprehensive understanding of reactor-grade fusion plasmas,
- studies of the socio-scientific aspects and economics of fusion power generation, and actions to promote public awareness and understanding of fusion.

5. Human resources, education and training - building the "ITER Generation"

Ensuring adequate human resources and a high level of cooperation within the fusion thematic area, both for the immediate and medium term needs of ITER, and for the further development of fusion, will be addressed by:

- support for the mobility of researchers between organisations participating in the specific programme, in order to promote enhanced collaboration and integration of the research activities, and to foster international cooperation,
- high-level training for engineers and researchers at post-graduate and post-doctoral level, including the use of facilities as training platforms, dedicated seminars and workshops, and fostering cooperation between higher education institutions.

6. Infrastructures

The realisation of ITER in Europe, within the international framework provided by the ITER Organisation, will add to the new research infrastructures with a strong European dimension.

7. Technology transfer, industry involvement and innovation

ITER will require a new and more flexible organisational structure to enable the resulting innovation and technological progress to be swiftly transferred to industry, thus enabling European industry to become more competitive. This will be addressed by:

- promotion of innovation and exchange of know-how with related universities, research institutes and industry, including appropriate interaction with ITER organisation and the European Joint Undertaking Fusion for Energy (F4E) (giving equal opportunity to industry partners to participate, according to the relevant Union procurement rules),
- encouragement for the generation of patents,
- promotion of the Fusion Industry Innovation Forum, which will develop a fusion technology roadmap and human resource development initiatives, with an emphasis on innovation and potential for providing new products and services.

I.B Nuclear fission, safety and radiation protection

Overall objective

Establishing a sound scientific and technical basis in order to accelerate practical developments for the safer management of long-lived radioactive waste, enhancing in particular the safety, while contributing to resource efficiency and cost-effectiveness of nuclear energy and ensuring a robust and socially acceptable system of protection of man and the environment against the effects of ionising radiation.

Activities

Indirect actions in nuclear fission, safety and radiation protection will be undertaken in five principal areas of activity detailed below. In the light of the reinforced emphasis on nuclear safety contributing to reorientation of nuclear research, the areas of installation safety, radiation protection (including medical uses) and risk assessment shall receive the greatest possible attention. There are important links with research in the Seventh Framework Programme of the Union adopted by Decision No 1982/2006/EC of the European Parliament and of the Council of 18 December 2006 concerning the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007-2013)¹, in particular in the areas of energy, European standards, education and training, environmental protection, health, material science, governance, common infrastructures, security and safety culture. International cooperation will be encouraged across many of the research activities, with special focus on safety of nuclear installations, and this will be in collaboration with the relevant technical and stakeholder forums described in the rationale for nuclear fission, safety and radiation protection activities in point I.B. of Annex I of Decision 2011/.../Euratom*.

¹ OJ L 412, 30.12.2006, p. 1.

* OJ: please insert the number of the Decision set out in doc. 17503/11.

1. Management of ultimate radioactive waste

Engineering studies and demonstration of geological repository designs in order to prepare implementation while ensuring operational safety. Studies contributing to a better understanding of wastes and their behaviour over time, development of robust methodologies for performance and safety assessment, investigation of governance and societal issues related to public acceptance and other activities to underpin the development of a common European view on the main issues related to waste management from discharge to disposal.

2. Reactor systems

While respecting the overall objective, research to underpin the safe operation of all reactor systems (including fuel cycle facilities) in use in Europe or, to the extent necessary in order to maintain broad nuclear safety expertise in Europe, those reactor types which may be used in the future, focusing exclusively on safety aspects. This includes plant life assessment and management, safety culture (minimising the risk of human and organisational error), advanced safety assessment methodologies, numerical simulation tools, instrumentation and control, and prevention and mitigation of severe accidents, with associated activities to optimise knowledge management and maintain competences.

Activities include basic and key cross-cutting research activities (such as material science)¹ and, while focusing exclusively on safety aspects, the study of future reactors and all aspects of the fuel cycle such as partitioning and transmutation.

¹ It is understood that the ERC is responsible for supporting frontier research in all areas of science and technology.

3. Radiation protection

Activities in this area will focus on:

- Better quantification of the risks to health for low and protracted exposures, including individual variability, through epidemiological studies and an improved understanding of the mechanisms through cellular and molecular biology research.
- Enhance the safety and efficacy of medical uses of radiation through new technological developments and achieving a proper balance between the benefits and risks of such uses.
- Improve the coherence and integration of emergency and post-accident management in Europe through the development of common tools and strategies and demonstrate their efficacy in operational environments.
- In other areas, national research activities will be more effectively integrated as considered necessary.

4. Infrastructures

Where there is clear European added value especially in order to establish critical mass, support for the design, refurbishment, construction and/or operation of key research infrastructures required in any of the above thematic areas, including facilitating the appropriate access to existing and future infrastructures by individual research workers and research teams.

5. Human resources and training¹

Coordination of national programmes and provision for general training needs in nuclear science and technology through a range of instruments, including those with shorter-term results and of a competitive nature, as part of general support to human resources in all thematic domains. Includes support for training courses and training networks, and measures to make the sector more attractive to young scientists and engineers and to improve coordination between the Union educational institutions in order to ensure qualifications are equivalent across all Member States.

¹ It is understood that responsibility for mobility of researchers between all areas of science and technology rests with the People Programme under the Union Framework Programme.

II. Ethical aspects

During the implementation of this specific programme and in the research activities arising from it, fundamental ethical principles are to be respected. These include, inter alia, the principles reflected in the Charter of Fundamental Rights of the European Union, including the following: protection of human dignity and human life, protection of personal data and privacy, as well as animals and the environment in accordance with Community law and the latest versions of relevant international conventions, guidelines and codes of conduct, e.g. the Helsinki Declaration, the Convention of the Council of Europe on Human Rights and Bio-medicine signed in Oviedo on 4 April 1997 and its Additional Protocols, the UN Convention on the Rights of the Child, the Universal Declaration on the human genome and human rights adopted by UNESCO, UN Biological and Toxin Weapons Convention, International Treaty on Plant Genetic Resources for Food and Agriculture, and the relevant World Health Organisation resolutions.

Account will also be taken to the opinions of the European Group of Advisers on the Ethical Implications of Biotechnology (1991 to 1997) and the opinions of the European Group on Ethics in Science and New technologies (as from 1998).

In compliance with the principle of subsidiarity and the diversity of approaches existing in Europe, participants in research projects must conform to current legislation, regulations and ethical rules in the countries where the research will be carried out. In any case, national provisions apply and no research forbidden in any given Member State or other country will be supported by Community funding to be carried out in that Member State or country.

Where appropriate, those carrying out research projects must seek the approval of the relevant national or local ethics committees prior to the start of the RTD activities. An ethical review will also be implemented systematically by the Commission for proposals dealing with ethically sensitive issues or where ethical aspects have not been adequately addressed. In specific cases an ethical review may take place during the implementation of a project.

Article 13 of the Treaty on the functioning of the European Union requires the Union and the Member States to pay full regard to the welfare requirements of animals in formulating and implementing Union's policies including research. Council Directive 86/609/EEC of 24 November 1986 on the approximation of laws, regulations and administrative provisions of the Member States regarding the protection of animals used for experimental and other scientific purposes¹ requires that all experiments be designed to avoid distress and unnecessary pain and suffering to the experimental animals; use the minimum number of animals; involve animals with the lowest degree of neurophysiological sensitivity; and cause the least pain, suffering, distress or lasting harm. Altering the genetic heritage of animals and cloning of animals may be considered only if the aims are ethically justified and the conditions are such that the animals' welfare is guaranteed and the principles of biodiversity are respected. During the implementation of this specific programme, scientific advances and national and international provisions will be regularly monitored by the Commission so as to take account of any developments.

¹ OJ L 358, 18.12.1986, p. 1.